

I CLAIM:

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1. ~~An asphalt resurfacing machine having a transport structure, a heater mounted to said transport structure for heating an underlying surface to form a heated surface, a scarifier mounted to said transport structure to follow said heater and break up said heated surface to form a scarified surface, a mill mounted to said transport structure follow said scarifier, grind said scarified surface to form a milled material and to prepare said underlying surface to a preset depth, a rejuvenating fluid sprayer for introducing a rejuvenating fluid to said milled material and a mixer for blending said milled material with said rejuvenating fluid, said mixer having a first stage comprising:~~
- ~~a first stage shell which is substantially enclosed but for a downwardly facing bottom opening;~~
- ~~an inlet opening through a forward face of said shell facing in a travel direction of said transport structure for receiving said milled material;~~
- ~~a first stage shaft extending transversely relative to said travel direction and mounted to said first stage shell for rotation about a first stage shaft axis;~~
- ~~a plurality of paddles extending radially from said first stage shaft for blending said rejuvenating fluid with said milled material and for directing said blended material thus formed toward a first stage discharge outlet facing rearwardly relative to said travel direction; and,~~
- ~~a rotator for rotating said shaft along with said paddles wherein said first stage shell is placeable in close proximity to said underlying surface to use said underlying surface as a bottom part thereof.~~
2. ~~An asphalt resurfacing machine according to claim 1 wherein said mixer further has a second stage mounted to follow said first stage and receive said blended material from said discharge outlet of said first stage, said second stage comprising:~~
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a downwardly opening second stage shell extending from a rear of said first stage shell;

a second stage shaft mounted in said second stage shell for rotation about a second stage shaft axis generally parallel to said first stage shaft axis;

a plurality of paddles extending substantially radially from said second stage shaft and rotatable therewith for further blending said blended material and directing said blended material toward a second stage discharge opening through said second stage shell facing rearwardly relative to said travel direction; and,

a rotator for rotating said second stage shaft about said second stage shaft axis.

3. An asphalt resurfacing machine as claimed in claim 1 wherein:

said rotator includes a motor rotationally coupled to said first stage shaft.

4. An asphalt resurfacing machine as claimed in claim 3 wherein:

said motor is rotationally coupled to said first stage shaft by a motor sprocket mounted to said motor to drive a corresponding first stage shaft sprocket mounted to said first stage shaft by a chain extending thereabout.

5. An asphalt resurfacing machine as claimed in claim 2 wherein:

said rotator for said first and second stages includes a motor rotationally coupled to said first and second stage shafts.

6. An asphalt resurfacing machine as claimed in claim 5 wherein:

said motor is rotationally coupled to said first and second stage shafts by a motor sprocket mounted to said motor and coupled by chain to corresponding first and

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~~second stage shaft sprockets mounted respectively to said first and second stage shafts.~~

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7. A method for blending milled material with rejuvenating fluid in an asphalt resurfacing machine having a first pug mill attached to a transport structure associated with said asphalt resurfacing machine in an inverted arrangement in which an open face of said first pug mill is adjacent an underlying surface for said underlying surface to act as a bottom of said pug mill, said first pug mill having a first paddle shaft extending generally transversely relative to a travel direction of said transport structure, said method comprising the steps of:

- (i) moving said transport structure along said underlying surface to move said first pug mill in said travel direction;
- (ii) receiving said milled material and rejuvenating fluid into said first pug mill through a forwardly facing first inlet;
- (iii) blending said milled material with said rejuvenating fluid by rotating said first paddle shaft to cause paddles extending radially therefrom to commingle said milled material with said rejuvenating fluid, said paddles being aligned to direct a blended material thus formed toward a rearwardly facing first discharge opening; and,
- (iv) allowing said blended material to be discharged, through said first discharge opening as said first pug mill moves in said travel direction.

8. A method according to claim 7 wherein a second pug mill is attached to said transport structure to follow said first pug mill, said second pug mill being mounted in an inverted arrangement in which an open face thereof is adjacent said underlying surface to utilize said underlying surface as a bottom thereto, said second pug mill having a second inlet for receiving said blended material discharged from said first discharge opening, said second pug mill having a second paddle shaft generally parallel to said first paddle shaft and having a plurality of

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paddles extending substantially radially therefrom and including the further steps of:

- (v) receiving said blended material into said second pug mill through said second inlet;
- (vi) rotating said second paddle shaft to further blend said blended material received from said first pug mill, said paddles being aligned to direct further blended material thus formed toward a rearwardly facing second discharge opening; and,
- (vii) discharging said further blended material in a windrow from said second ~~discharge opening~~.

9. A method according to claim 8 wherein:

said first and second paddle shafts are rotated simultaneously by a motor rotationally coupled thereto by a chain and sprocket drive arrangement.

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10. A method according to claim 9 wherein:

said chain and sprocket drive arrangement includes at least one sprocket affixed to an output shaft of said motor, at least one first sprocket affixed to said first paddle shaft; and

at least one second sprocket affixed to said second paddle shaft and at least one drive chain extending between said motor and first and second sprockets for transmitting rotational force from said output shaft to said first and second paddle shafts.

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